

REMARKS

Claim Rejections - 35 USC 112

Claims 1, 3-9, 11-22, 25, and 28-60 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the independent claims, the limitation of "wherein said soil carrier comprises a soil conditioner" is not disclosed as originally filed. At page 15, 1st paragraph of "Summary of the Invention" section, the solid carrier is disclosed and the paragraph is silent as to the carrier being a "soil conditioner".

Applicant has amended the claims accordingly.

Claims 1, 3-6, 9, 11, 12, 13, 16, 17, 20-22, 25, and 28-60 are rejected under 35 USC 103(a) as being unpatentable over Horne (US 2,765,291) in view of Green et al. (Sustaining the Global Farm).

The above claims have been amended to add that the solid carrier is made by an agglomeration process, including agitation, pressure, liquid and thermal.

Horne relates to pumice. Horne states in column 1 lines 31-40 that an important advantage of natural pumice for that purpose is the presence of a large number of small pores or channels, of both macroscopic and microscopic dimensions, that open inwardly from the surface of each particle. A further important characteristic of natural pumice is the unique type of surface roughness that it exhibits, both on the exterior

surfaces of pumice particles and on the inner surfaces within the pores. Horne teaches that solid granular substances adhere to the rough pumice surface and become trapped in pores of the pumice. Col 1 lines 46-48 states that an appreciable, and preferably a major portion of the agent becomes firmly attached to individual pieces of pumice.

Horne states in the first paragraph of Col. 1, how extremely difficult it is to find a carrier for chemical agents. Horne states how difficult it has been to obtain satisfactory materials for use as extenders, and that the only satisfactory extender that was found by Horne is pumice rock.

As stated in Col. 1 lines 56-68, the soil conditioning agent may be combined in liquid form with the extending pumice. The agent may be deposited on the surface and in the pores of the pumice by saturation of the pumice with the solution followed by evaporation of the solvent. This will cause an appreciable portion of the liquid to enter and cure in the pores of the pumice, much like water in an ice cube tray.

Col. 2 lines 14-17 states that the newly discovered ability of pumice particles to hold the extended agent firmly on its surface and in its pores permits a very wide variation in the ratio of particle sizes of the two components.

As stated at the bottom of col. 2, a portion of the agent, whether in finely divided solid form or in the form of a liquid, is thereby adhered to the rough pumice surface, partly on the exterior of the pumice particles and partly within the pores that open inwardly from the outer surface of the pumice. The remaining excess of agent is then removed, as by screening and the solvent may be removed by evaporation.

Col. 3 lines 51-62 state that soil treating agents of the type indicated, which are at least slightly watersoluble, are gradually released from the pumice pores by the moisture in the soil. Those portions of the agent that are most deeply embedded in the pumice pores are found to be removed by solution relatively slowly, so that even after direct and repeated leaching of the combination of pumice and a water soluble agent, an appreciable proportion of the agent remains in the composition.

As stated on Col 5, after 2 hours of shaking 9% of the product was removed.

Col. 5 lines 52-56, states that since the adherence of the agent to the rough pumice is essentially a surface effect rather than a volume effect, the proportion of agent to extender in a stable composition of the type described can be regulated, according to the available surface of the extending material.

Col. 5-Col. 6 states that the pore size and number of pore openings per unit of surface area vary considerably with the grade and origin of the pumice. The shape of the pores is ordinarily irregular. The sizes of the pores vary by over 20 times.

Pumice is not agglomeration. Pumice is the opposite of agglomeration, it is particle size reduction. Pumice does not comprise fibrous material.

Further Pumice does not consist essentially of fertilizer.

As to Claims 1, 16, 17, 20-22, 25, Horne discloses a method of applying a soil additive to the soil (col. 31, lines 5-50) comprising adding a soil additive to a solid carrier (carriers is pumice, see col. 1, lines 28-73), the carrier particles being in excess of 1 mm in diameter ("3/16 of inch" of col. 3, lines 5-11) and a soil conditioner (in that pumice will at least affect soil texture, aeration, and filtration), the carrier having

mineral (pumice has minerals), applying the solid carrier to the soil (col. 1, lines 49-55; col. 3, lines 43-49); applying water to the solid carrier (col. 3, lines 51-68); releasing the soil additive out to the solid carrier into the soil (col. 3, lines 51-68); wherein application rate of the solid carrier to the soil is based on the desired amount of the soil stabilizer to be metered to the soil (from col. 1, lines 49-55, col. 2, lines 4-6). Not disclosed is the soil additive being a soil stabilizer. Green et al., however, discloses the addition of a soil stabilizer, PAM anionic (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Horne by adding PAM to the soil as disclosed by Green et al. so as to stabilize soil aggregates as well as flocculate suspended particles (see abstract of Green et al.).

Claims 1 and 20 have been amended to require that the solid carrier is made by an agglomeration process. Horne teaches a pumice rock as a carrier, the rock not being made by an agglomeration process. Horne teaches that the rock can be used as a carrier by putting a product on the rough surface or in the pores of a rock. Hamilton Jr. teaches that a mulch can be made by an agglomeration process, however, since Horne cannot be made by an agglomeration process, the references cannot be combined. Hamilton Jr. does not teach a carrier. Claims 1 and 20 are not obvious over Horne in combination with Hamilton because the references in combination do not teach a method for applying a soil stabilizer to soil, wherein the solid carrier is made by an agglomeration process, including agitation, pressure, liquid and thermal. Further there is no reason to combine the references. Whereas Horne teaches a carrier which uses pores or a rough surface to attach a product, Hamilton does not teach a carrier,

and in fact teaches a mulch that disintegrates almost immediately. Further Hamilton is made by a type of agglomeration.

Therefore claims 1 and 20 are not obvious over the prior art.

Claims 16, 17, 21, 22 and 25 depend on Claim 1 and therefore are not obvious over the prior art.

As to claim 3, the limitations of claim 1 are disclosed as described above. Not disclosed is the carrier applied by the spreader. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Horne as modified Green et al. by using a spreader as a common means to add additives to the soil.

There is nothing described Horne nor is it obvious to use a conventional spreader to distribute pumice rock. For these reasons and the reasons stated above for Claim 1, Claim 3 is not obvious over the prior art.

As to claims 4 and 5, Horne as modified Green et al. further disclose rain (from "moisture" of Horne at col. 3, lines 50-68) and irrigation (page 1 of Green et al.).

For the reasons stated above for Claim 1, Claims 4 and 5 are not obvious over the prior art.

As to claim 6, Horne as modified Green et al. further disclose adding fertilizer to the carrier (Horne at col. 3, lines 12-32).

For the reasons stated above for Claim 1, Claim 6 is not obvious over the prior art.

As to claim 9, Horne as modified Green et al. further disclose adding pesticide to the carrier (Horne at col. 3, lines 34-50).

For the reasons stated above for Claim 1, Claim 9 is not obvious over the prior art.

As to claim 11, the limitations of claim 1 are disclosed as described above. Not disclosed is the stabilizer of the total weight being less than 50%. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Horne as modified by Green et al. by having the stabilizer of the total weight being less than 50% depending upon use of the composition.

Since neither of the references disclose any weights or percentages of soil stabilizer, it cannot be obvious. For this reason and the reasons stated above for Claim 1, Claim 11 is not obvious over the prior art.

As to claim 12, Horne as modified by Green et al. further disclose a granule (Horne at col. 1, lines 28-48).

For the reasons stated above for Claim 1, Claim 12 is not obvious over the prior art.

As to claim 13, Horne as modified by Green et al. further disclose the carrier being a fertilizer (Horne in that "pumice" is considered a fertilizer).

For the reasons stated above for Claim 1, Claim 13 is not obvious over the prior art.

As to claims 28-57, Horne as modified by Green et al. further disclose these limitations as inherent when PAM is added to the soil.

For the reasons stated above for Claim 1, Claims 28-57 are not obvious over the prior art.

As to claims 58-60, Horne discloses a method of applying a soil additive which would improve soil penetration, reduce fertilizer runoff, or reduce soil erosion to the soil (col. 31, lines 5-50) comprising adding a soil additive to a solid carrier (carriers in pumice, see col. 1, lines 28-73), applying the solid carrier to the soil (col. 1, lines 49-55; col. 3, lines 43-49); applying water to the solid carrier (col. 3, lines 51-68); releasing the soil additive out to the solid carrier into the soil (col. 3, lines 51-68); wherein application rate of the solid carrier to the soil is based on the desired amount of the soil stabilizer to be metered to the soil (from col. 1, lines 49-55, col. 2, lines 4-6). Not disclosed is the soil additive being a soil stabilizer and the application by conventional application equipment. Green et al., however, discloses the addition of a soil stabilizer, PAM anionic (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Horne by adding PAM to the soil as disclosed by Green et al. so as to stabilize soil aggregates as well as flocculate suspended particles (see abstract of Green et al.) and to apply by conventional application means as a well known means of application.

For the reasons stated above for Claim 1, Claims 58-60 are not obvious over the prior art. Further, there is no teaching to combine Green with Horne since Green does not teach rocks and therefore it is not obvious to use conventional application means to supply pumice rock to the soil.

Claims 7, 8 and 15 are rejected under 35 USC 103(a) as being unpatentable over Horne (US 2,765,291) in view of Green et al. (Sustaining the Global Farm) in further view of Roberts et al. (US 5,725,630).

As to claims 7 and 8, the limitations of claim 1 are disclosed as described above. Not disclosed is the soil carrier being a fibrous material, seed. Roberts et al. however, discloses the use of a seed as a carrier ("oats" of col. 5, lines 40-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Horne as modified by Green et al. by using a seed as the carrier as disclosed by Roberts et al. depending upon use of the composition.

Claim 7 requires that the solid carrier be made of a fibrous material. Horne teaches that the solid carrier is made of rock which is not a fibrous material. Specifically, Horne requires that the carrier is made of pumice rock, because pumice rock has pores and a rough surface which a material can become attached to. Horne teaches against using a fibrous material because a fibrous material does not have pores or a rough surface, and therefore Horne can not be combined with the teachings of Hamilton. For this reason and the reasons stated above for Claim 1, Claim 7 is not obvious over the prior art.

Claim 8 requires that the solid carrier further comprise a seed. Since Horne teaches a pumice rock as the solid carrier, it cannot further comprise a seed. There is no where for the seed to be combined with the rock. There is no teaching in Horne to combine a seed with the carrier. There is no teaching to combine Hamilton with Horne, since there is nothing in Horne which teach rock as a carrier to add a seed to it, nor can

it be physically done. For this reason and the reasons stated above for Claim 1, Claim 8 is not obvious over the prior art.

As to claim 15, the limitations of claim 1 are disclosed as described above. Not disclosed is the soil carrier being calcium oxide. Roberts et al., however, discloses the use of calcium oxide ("calcium silicate" of col. 3, lines 60-68). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Horne as modified by Green et al. by using calcium oxide the carrier as disclosed by Roberts et al. depending upon use of the composition.

For the reasons stated above for Claim 1, Claim 15 is not obvious over the prior art. Further, there is no teaching as to why Horne which teaches a pumice rock would want to add calcium oxide or aluminum sulfate to the pumice rock.

Claims 14, 18 and 19 are rejected under 35 USC 103(a) as being unpatentable over Horne (US 2,765,291) in view of Green et al. (Sustaining the Global Farm) in further view of Hamilton Jr. (US 5,456,733).

As to claim 14, the limitations of claim 1 are disclosed as described above. Not disclosed is the carrier comprising disease causing microbes. Hamilton, Jr., however, discloses adding a disease causing microbe to a solid carrier (within the ambit of "other optional additives" of col. 3, lines 35-43 of Hamilton, Jr.) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Horne as modified by Green et al. by adding a disease causing microbe to the carrier as disclosed by Hamilton Jr. depending upon use of the carrier.

For the reasons stated above for Claim 1, Claim 14 is not obvious over the prior art. Further, there is no teaching to add disease causing microbes to a pumice rock.

As to claims 18 and 19, the limitations of claim 1 are disclosed as described above. Not disclosed is solid carrier being a material from paper manufacturing with a previous treated ingredient that has soil stabilizing properties. Hamilton, Jr., however, further discloses a solid carrier being a material from paper manufacturing ("newsprint" of col. 3, lines 26-33) with a previous treated ingredient that has soil stabilizing properties ("binder material" of col. 3, lines 26-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the method of Horne as modified by Green et al. by using as the solid carrier a material from paper manufacturing with a previous treated ingredient that has soil stabilizing properties by Hamilton Jr. so as to find a use, that is recycle, newsprint.

Horne teaches a rock. One cannot modify using a rock as a solid carrier to make it a material from a paper manufacturing process. For these reasons and the reasons stated above for Claim 1, Claims 18 and 19 are not obvious over the prior art.

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Hamilton Jr. (US 5,456,733) in view of Green et al. (Sustaining the Global Farm).

As to claim 10, Hamilton Jr. discloses a method of applying an agent to the soil (from col. 4, lines 35-41 and col. 5, lines 43-46) comprising adding the agent to the solid carrier (from col. 5, lines 43-46) that are pellets (col. 4, lines 5-42); applying the soil carrier to the soil (from col. 4, lines 35-41); applying water to the solid carrier (from "when wetted" of col. 4, lines 35-41); releasing the agent out of the carrier and into the

soil (from "release water" of col. 4, lines 35-41); wherein application rates of the solid carrier to the soil is based on the desired amount of agent to be metered to the soil (from "to release any included nutrients" from abstract in that mulch application would be monitored for amount of nutrient needed or applied); the soil carrier is an agglomerate (inherent in "pelletization" of col. 4, lines 14-18; extrusion is a pressure agglomeration, see for example US 4,123,489 at col. 9, lines 3-8). Not disclosed is the soil agent being a soil stabilizer. Green et al., however, discloses applying a soil stabilizer, PAM, to the soil (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Hamilton, Jr. by using PAM as the agent as disclosed by Green et al. so as to stabilize soil aggregation and flocculate suspended particles (see abstract of Green et al.) so as to stop erosion.

For the reasons stated above for Claim 1, Claim 10 is not obvious over the prior art.

Applicant has added new Claims 61 and 62. Both claims are supported by the specification. Claim 61 is allowable over the prior art. Claim 61 requires that the solid carrier consist essentially of a fertilizer. Horne teaches a pumice rock. Hamilton teaches a mulch. Neither of the references alone or in combination teach a carrier that consists essentially of a fertilizer. Therefore, Claim 61 is allowable over the prior art.



Claim 62 requires that the solid carrier comprise a fibrous material. Horne teaches a rock which is not a fibrous material. Hamilton does not teach a carrier. So the combination of Horne and Hamilton does not teach that the solid carrier comprise a fibrous material. Therefore, Claim 62 is allowable over the prior art.

Applicant believes that the application is now in condition for allowance.

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